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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/973,693 | 10/11/2001 | Mikhail Boroditsky | 03493.00311 | 6289 |
| 26652 | 7590 | 10/05/2005 | EXAMINER | |
| AT&T CORP. P.O. BOX 4110 MIDDLETOWN, NJ 07748 | | | WANG, QUAN ZHEN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2633 | |

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,693

Applicant(s)

BORODITSKY ET AL.

Examiner

Quan-Zhen Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/11/01, 10/11/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the dropped composite packet in said photonic time slot is further distributed to a plurality of user sites connected to said destination node by using Wavelength Division Multiplexing (WDM) techniques" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the system according to claim 5, wherein a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the node transparently." However, it is not clear how the recited limitation relates to the depending claims since there is no fiber Bragg grating (FBG) introduced in the depending claims.

Claim 13 recites the limitation "the system according to claim 12, wherein a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the node transparently." However, it is not clear how the recited limitation relates to the depending claim since there is no fiber Bragg grating (FBG) introduced in the depending claim.

Claim Rejections - 35 USC § 103

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 6-7, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (U.S. Patent US 5,600,466) in view of Sasayama et al. (U.S. Patent US 5,493,434).

Regarding claims 1 and 12, Tsushima discloses a system for providing high connectivity communications over a composite packet-switched optical ring network comprising: a plurality of nodes (fig. 13, nodes 101b, 101c, 101L), each node further comprising, an optical crossbar switch (fig. 7, element 15) connected to said packet-switched optical ring network; and a wavelength stacker (fig. 7, combination of delay element 14 and the DEMUX and combiner) for stacking said plurality of serially generated packets to form a composite packet (figs. 4a-4f). Tsushima differs from the claimed invention in that Tsushima does not specifically teach that a rapidly tunable laser for serially generating a plurality of packets, each packet being generated at a different wavelength. However, it is well known in the art to use a tunable laser for serially generating a plurality of packets. For example, Sasayama discloses to use a tunable laser for serially generating a plurality of packets (fig. 18). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a tunable laser for serially generating a plurality of packets, as it is

taught by Sasayama, into the system of Tsushima in order to generate optical signals at different wavelength with fewer lasers.

Regarding claim 3, Tsushima further teaches that the stacker also operates as an unstacker to recover and re-serialize the plurality of packets from the composite packet (fig. 8).

Regarding claim 6, the optical crossbar switch in the system of Tsushima is inherently wavelength independent.

Regarding claim 7, Tsushima further teaches that the packet-switched optical ring network is a point-to-point network (fig. 13).

3. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (U.S. Patent US 5,600,466) in view of Sasayama et al. (U.S. Patent US 5,493,434) and further in view of Mizrahi (U.S. Patent US 5,748,349).

Regarding claim 2, the modified system of Tsushima and Sasayama differs from the claimed invention in that Tsushima and Sasayama do not specifically teach that the wavelength stacker further comprising a plurality of optical circulator and a plurality of FBGs connected to and sandwiched between the plurality of optical circulators and the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators. However, incorporating optical circulator with Bragg grating to pass or prevent specific channels is well known in the art. For example, Mizrahi discloses an optical device comprising a plurality of optical circulator and a plurality of FBGs connected to and sandwiched between the plurality of optical circulators and the

plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators (fig. 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical device, such as the one disclosed by Mizrahi, in the modified system of Tsushima and Sasayama to stack and unstuck optical signals in order to add and drop optical signals in the optical network.

Regarding claim 13, as it is understood in view of the above 112 problem, it is obvious that a wavelength not matching a wavelength of a fiber Bragg grating (FBG) bypasses the grating transparently.

4. Claims 4-5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (U.S. Patent US 5,600,466) in view of Sasayama et al. (U.S. Patent US 5,493,434) and further in view of Chlamtac et al. (Imrich Chlamtac, et. Al.; "Scalable WDM Access Network Architecture Based on Photonic Slot Routing"; IEEE/ACM Transactions on Networking, vol. 7, No. 1, February 1999, pages 1-9).

Regarding claims 4 and 5, the modified system of Tsushima and Sasayama differs from the claimed invention in that Tsushima and Sasayama do not specifically teach that the optical crossbar switch facilitates a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being dropped from/added to the packet-switched optical ring network at a destination node. However, it is well known in the art that an optical crossbar switch facilitates a composite packet in a photonic time slot that is being propagated on said packet-

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switched optical ring network being dropped from/added to the packet-switched optical ring network at a destination node. For example, Chlamtac discloses to use crossbar switch to facilitate a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being dropped from/added to the packet-switched optical ring network at a destination node (Paragraph *B. Node and Bridge Architectures*). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a crossbar switch facilitating a composite packet in a photonic time slot that is being propagated on said packet-switched optical ring network being dropped from the packet-switched optical ring network at a destination node, as it is disclosed by Chlamtac, into the modified system of Tsushima and Sasayama in order to drop the signals in the same photonic slot which is designated for the node from the ring and add signals in a same photonic slot generated by the node to the ring to further transmit a plurality of different optical signals.

Regarding claim 8, Chlamtac further discloses that the optical crossbar switch facilitates a composite packet in a photonic time slot bypassing a given node depending on a position of the optical switch (Paragraph *B. Node and Bridge Architectures*).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (U.S. Patent US 5,600,466) in view of Sasayama et al. (U.S. Patent US 5,493,434) and Chlamtac et al. (Imrich Chlamtac, et. Al.; "Scalable WDM Access Network Architecture Based on Photonic Slot Routing"; IEEE/ACM Transactions on

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Networking, vol. 7, No. 1, February 1999, pages 1-9), and further in view of Mesh (U.S. Patent US 6,256,431 B1).

Regarding claim 9, the modified system of Tsushima, Sasayama, and Chlamtac differs from the claimed invention in that Tsushima, Sasayama, and Chlamtac do not specifically teach that the dropped composite packet in the photonic time slot is further distributed to a plurality of user sites connected to the destination node by using Wavelength Division Multiplexing (WDM) techniques. However, it is well known in the art to distribute information to a plurality of user sites using WDM techniques. For example, Mesh discloses to distribute information to a plurality of user sites using WDM techniques (fig. 1; column 1, lines 33-36). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an information distribution method using WDM techniques, such as the one disclosed by Mesh, into the system of Tsushima modified by Sasayama and Chlamtac in order to send information to each designated individual users.

6. Claim 10 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. (U.S. Patent US 5,600,466) in view of Sasayama et al. (U.S. Patent US 5,493,434) and Chlamtac et al. (Imrich Chlamtac, et. Al.; "Scalable WDM Access Network Architecture Based on Photonic Slot Routing"; IEEE/ACM Transactions on Networking, vol. 7, No. 1, February 1999, pages 1-9), and further in view of Adams (U.S. Patent US 6,748,175 B1).

Regarding claim 10, the modified system of Tsushima, Sasayama, and Chlamtac differs from the claimed invention in that Tsushima, Sasayama, and Chlamtac do not specifically teach the dropped composite packet in the photonic time slot is further detected in parallel. However, it is well known in the art to detect composite packet in the photonic time slot in parallel. For example, Adams discloses to drop signals using a DMUX (fig. 2, DEMUX 235) and the signals can be inherently detected in parallel. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a DEMUX to drop composite packet in a photonic time slot, as it is taught by Adams, into the system of Tsushima modified by Sasayama and Chlamtac in order to separate the multiplexed signals at different wavelengths and detect the information carried by each channel.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-13 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-37 of copending Application No. 09/973699. Although the conflicting claims are not identical, they are not patentably distinct from each other because both application claim a composite packet add-drop optical ring network system comprising: a plurality of nodes, each node further comprising, an optical crossbar switch connected to the packet-switched optical ring network; a rapidly tunable laser for serially generating a plurality of packets, each packet being generated at a different wavelength; and a wavelength stacker for stacking the plurality of serially generated packets to form a composite packet; and wherein the wavelength stacker further comprises: a plurality of optical circulators and a plurality of fiber Bragg gratings (FBGs) connected to and sandwiched between the plurality of optical circulators, wherein the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

9. Claims 1-13 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 38-71 of copending Application No. 09/995692. Although the conflicting claims are not identical, they are not patentably distinct from each other because both application claim a composite packet add-drop optical ring network system comprising: a plurality of nodes, each node further comprising, an optical crossbar switch connected to the packet-

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switched optical ring network; a rapidly tunable laser for serially generating a plurality of packets, each packet being generated at a different wavelength; and a wavelength stacker for stacking the plurality of serially generated packets to form a composite packet; and wherein the wavelength stacker further comprises: a plurality of optical circulators and a plurality of fiber Bragg gratings (FBGs) connected to and sandwiched between the plurality of optical circulators, wherein the plurality of FBGs are cascaded and equally spaced between the plurality of optical circulators.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sotom et al. (U.S. Patent US 5,796,501) discloses a wavelength division multiplexing optical communication network. Milton et al (U.S. Patent US 6,529,300 B1) disclose a WDM optical network with passive pass-through at each node.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
9/20/2005


M. R. SEDIGHIAN
PRIMARY EXAMINER